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10/827,139	04/19/2004	Trudy L. Benjamin	200209168-1	2307

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EXAMINER	
MARTIN, LAURA E	

ART UNIT	PAPER NUMBER
2853	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/827,139	BENJAMIN ET AL.	
	Examiner	Art Unit	
	Laura E. Martin	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36 and 38-54* is/are pending in the application.

4a) Of the above claim(s) *48-54* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36 and 38-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/ are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims, 1, 3-9, 21, 23-27, 29-32, 35, 36, 38-43 and 47, are rejected under 35 U.S.C. 102(b) as being anticipated by Schloeman et al. (US 6659581 B2).

Schloeman et al. disclose the following claim limitations:

Claim 1: a first fire line adapted to conduct a first energy signal comprising energy pulses; a second fire line adapted to conduct a second energy signal comprising energy pulses (figure 4, column 2, lines 32-41 – energy signals to resistors); a first address generator configured to provide first address signals; a second address generator configured to provide second address signals (figure 4, elements 110a/118a and 110n/118n generate address signals – FIRE_PULSE 1 and FIRE_PULSEn); first drop generators electrically coupled to the first fire line and configured to respond to the first energy signal to eject fluid based on the first address signals; and second drop generators electrically coupled to the second fire line and configured to respond to the second energy signal to eject fluid based on the second address signals (figure 4, elements are all electrically coupled; column 2, lines 32-41).

Claim 3: the first address generator is disposed on a first half portion of the fluid ejection device and the second address generator is disposed on a second half portion of the fluid ejection device, and wherein the first drop generators are disposed on the first half portion and the second drop generators are disposed on the second half portion (figure 4).

Claim 4: the first address generator is disposed at one end of the fluid ejection device and the second address generator is disposed at the other end of the fluid ejection device (figure 4).

Claim 5: the first address generator is disposed in one corner of the fluid ejection device and the second address generator is disposed in another corner of the fluid ejection device (figure 4, corner needs to be further defined).

Claim 6: a third fire line adapted to conduct a third energy signal comprising energy pulses; a fourth fire line adapted to conduct a fourth energy signal comprising energy pulses (figure 4, column 2, lines 32-41 - energy signals to resistors); third drop generators electrically coupled to the third fire line and configured to respond to the third energy signal to eject fluid based on the first address signals; and fourth drop generators electrically coupled to the fourth fire line and configured to respond to the fourth energy signal to eject fluid based on the second address signals (figure 4, FIRE_PULSE 2 and FIRE_PULSE 3 – there can be n number – a plurality of elements; column 2, lines 32-41).

Claim 7: the first and third drop generators are disposed on a first half portion, and the second and fourth drop generators are disposed on a second half portion (figure 4, half portion needs to be further defined).

Claim 8: a fifth fire line adapted to conduct a fifth energy signal comprising energy pulses; a sixth fire line adapted to conduct a sixth energy signal comprising energy pulses; fifth drop generators electrically coupled to the fifth fire line (figure 4, there are n number of fire lines; all of the elements for each group are electrically coupled within the circuit) and configured to respond to the fifth energy signal to eject fluid based on the first address signals; and sixth drop generators electrically coupled to the sixth fire line and configured to respond to the sixth energy signal to eject fluid based on the second address signals, and wherein the first, third and fifth drop generators are disposed on a first half portion and the second, fourth and sixth drop generators are disposed on a second half portion (figure 4, FIRE_PULSE 4 and FIRE_PULSE 5 – there can be n number – a plurality of elements; column 2, lines 32-41).

Claim 9: first address lines adapted to conduct the first address signals and second address lines adapted to conduct the second address signals, wherein the first address lines are disposed in one half portion and the second address lines are disposed in a second half portion (figure 4, the half portions need to be further defined).

Claim 21: a first fire line adapted to conduct a first energy signal comprising energy pulses; a second fire line adapted to conduct a second energy signal comprising

energy pulses (figure 4, column 2, lines 32-41 – energy signals to resistors); means for generating first address signals; means for generating second address signals (figure 4, elements 110a/118a and 110n/118n); means for responding to the first energy signal to eject fluid based on the first address signals; and means for responding to the second energy signal to eject fluid based on the second address signals (column 1, lines 32-41).

Claim 23: wherein the means for generating first address signals is disposed on a first half of the fluid ejection device and the means for generating second address signals is disposed on a second half of the fluid ejection device (figure 4).

Claim 24: the means for generating first address signals is disposed in one corner of the fluid ejection device and the means for generating second address signals is disposed in another corner of the fluid ejection device (figure 4 – corners need to be further defined).

Claim 25: means for supplying the first address signals to the means for responding to the first energy signal and means for supplying the second address signals to the means for responding to the second energy signal, wherein the means for supplying the first address signals is disposed in a first half portion of the fluid ejection device and the means for supplying the second address signals is disposed in a second half portion of the fluid ejection device (figure 4).

Claim 26: generating first address signals in the fluid ejection device; generating second address signals in the fluid ejection device (figure 4, elements 110a/118a and

110n/118n); receiving a first energy signal comprising energy pulses on a first fire line; receiving a second energy signal comprising energy pulses on a second fire line (figure 4, column 2, lines 32-41); responding to the first energy signal to eject fluid based on the first address signals; and responding to the second energy signal to eject fluid based on the second address signals (figure 4, elements 118a and 118n).

Claim 27: receiving the first energy signal at each of first drop generators; receiving the second energy signal at each of second drop generators (figure 4, elements 118 a/n and 116 a/n); activating the first drop generators based on the first address signals; and activating the second drop generators based on the second address signals (figure 4, elements 114a and 114n).

Claim 29: receiving a third energy signal comprising energy pulses on a third fire line; receiving a fourth energy signal comprising energy pulses on a fourth fire line (figure 4, column 2, lines 32-41); responding to the third energy signal to eject fluid based on the first address signals; and responding to the fourth energy signal to eject fluid based on the second address signals (figure 4, element 4 – fire pulse activates energy signals).

Claim 30: receiving a fifth energy signal comprising energy pulses on a fifth fire line; receiving a sixth energy signal comprising energy pulses on a sixth fire line (figure 4, column 2, lines 32-41); responding to the fifth energy signal to eject fluid based on the first address signals; and responding to the sixth energy signal to eject fluid based on the second address signals (figure 4, fire pulse activates energy signals).

Claim 31: receiving data signals representing an image on data lines; responding to the first energy signal to eject fluid based on the data signals; and responding to the second energy signal to eject fluid based on the data signals (figure 4, elements data_bus).

Claim 32: the first and second drop generators are divided into data line groups of drop generators, the method comprising activating the first and second drop generators in each of the data line groups of drop generators based on the data signals on a corresponding data line (figure 4).

Claim 35: a first fire line adapted to conduct a first energy signal comprising energy pulses (figure 4, column 2, lines 32-41); a first source of address signals configured to provide first address signals (figure 1, element 110a/118a); and first resistors electrically coupled to the first fire line and configured to respond to the first pulses to cause fluid to be ejected fluid based on the first address signals (figure 4, column 2, lines 32-41), wherein the first source of address signals and the first resistors are positioned on a first portion of the fluid ejection device (figure 4), and a second source of address signals (figure 4, FIRE_PULSE 2)configured to provide second address signals, where the second source of address signals is positioned on a second portion of the fluid ejection device to supply address signals to resistors on a second portion of the fluid ejection device (figure 4).

Claim 36: a second fire line (figure 4, column 2, lines 32-41) adapted to conduct a second energy signal comprising energy pulses; and second resistors electrically

coupled to the second fire line and configured to respond to the second pulses to cause fluid to be ejected fluid based on the first address signals, wherein the first source of address signals and the second resistors are positioned on the first portion of the fluid ejection device (figure 4).

Claim 38: a second fire line (figure 4, column 2, lines 32-41) adapted to conduct a second energy signal comprising energy pulses; a second source of address signals configured to provide second address signals (figure 4, element 110n/118n); and second resistors electrically coupled to the second fire line and configured to respond to the second pulses to eject fluid based on the second address signals, wherein the second source of address signals and the second resistors are positioned on a second portion of the fluid ejection device (figure 4).

Claim 39: a first source of first address signals; a second source of second address signals; first address lines configured to conduct the first address signals; second address lines configured to conduct the second address signals (figure 4, elements 110a/118a and 110n/118n); first resistors electrically coupled to the first address lines, the first resistors configured to cause fluid to be ejected based on the first address signals; and second resistors electrically coupled to the second address lines, the first resistors configured to cause fluid to be ejected based on the first address signals (figure 4, FIRE_PULSE 1 and FIRE_PULSE n); and wherein the first address generator and the first resistors are located on first portion of the fluid ejection device

and the second address generator and the second resistors are located on a second portion of the fluid ejection device (figure 4).

Claim 40: the first address lines are disposed in only the first portion and the second address lines are disposed in only the second portion (figure 4).

Claim 41: the first address lines and the first fire line are disposed in only the first portion and the second address lines and the second fire line are disposed in only the second portion (figure 4).

Claim 42: a fluid feed source having a length, wherein the first fire line and the first address lines are disposed as non-overlapping metal lines along a portion of the length of the fluid feed source (figure 4, elements 110a and 118a).

Claim 43: a first group of resistors that each cause fluid to be ejected from a corresponding opening and a second group of resistors that cause fluid to be ejected from a corresponding opening, the first group of resistors being disposed on a first portion of the fluid ejection device and the second resistors being disposed on a second portion of the fluid ejection device (figure 4, column 2, lines 32-41), the method comprising: generating first address signals at a first source; generating second address signals at a second source different than the first source (figure 4, elements 110a/118a and 110n/118n); providing the first address signals to the first group of resistors; and providing the second address signals to the second group of resistors.

Claim 47: providing a synchronization signal to both the first and second source of address signals (column 7, lines 34-43)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schloeman et al. (US 6659581 B2).

Claim 33: Schloeman discloses the claimed invention except for distributing the first energy signal to the drop generators with an energy variation of less than 20% between any two of the first drop generators. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the energy of the drop generators, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, USPQ 233.

Claim 34: Schloeman discloses the claimed invention except for distributing the first energy signal to the drop generators with an energy variation of up to 10% to 15% between any two of the first drop generators. It would have been obvious to one having

ordinary skill in the art at the time the invention was made to vary the energy of the drop generators, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, USPQ 233.

Claims 2, 22, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schloeman et al. (US 6659581 B2) in view of Axtell et al. (US 2002/0060722 A1).

Schloeman et al. disclose the following claim limitations:

The independent claims 1, 21, and 26.

Schloeman et al. do not disclose the following claim limitations:

Claims 2, 22, and 28: the first address signals are valid while the second address signals are invalid and the second address signals are valid while the first address signals are invalid.

Axtell et al. disclose the following claim limitations:

Claims 2, 22, and 28: the first address signals are valid while the second address signals are invalid and the second address signals are valid while the first address signals are invalid (figure 5B, A_n, A_{n+8}, pulses are generated at different times).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ejection devices and methods taught by Schloeman et al. with the disclosure of Axtell et al. in order to provide higher quality control information.

Claims 10-20 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schloeman et al. (US 6659581 B2) in view of Cleland et al. (US 6491377 B1).

Schloeman et al. disclose the following claim limitations:

Claim 10: address lines adapted to conduct the first address signals, wherein the first drop generators are configured to respond based on the first address signals provided by the first address lines, wherein the first fire line and the address lines are disposed as non-overlapping metal lines along a portion of the length of the fluid feed source (figure 4).

Claim 15: a third fire line adapted to conduct a third energy signal comprising energy pulses; a fourth fire line adapted to conduct a fourth energy signal comprising energy pulses (figure 4, column 2, lines 32-41); third drop generators electrically coupled to the third fire line and configured to respond to the third energy signal to eject fluid based on the first address signals; and fourth drop generators electrically coupled to the fourth fire line and configured to respond to the fourth energy signal to eject fluid based on the second address signals, wherein each of the first and second drop generators is fluidically coupled to the first fluid feed source and each of the third and fourth drop generators is fluidically coupled to the second fluid feed source (figure 4).

Claim 16: first address lines adapted to conduct the first address signals and second address lines adapted to conduct the second address signals, wherein the first and third drop generators and the first address lines are disposed on a first half portion

and the second and fourth drop generators and the second address lines are disposed on a second half portion (figure 4) Cleland et al. also discloses claim 16 in figure 11A.

Claim 17: a fifth fire line adapted to conduct a fifth energy signal comprising energy pulses; a sixth fire line adapted to conduct a sixth energy signal comprising energy pulses (figure 4, column 2, lines 32-41); fifth drop generators electrically coupled to the fifth fire line and configured to respond to the fifth energy signal to eject fluid based on the first address signals; and sixth drop generators electrically coupled to the sixth fire line and configured to respond to the sixth energy signal to eject fluid based on the second address signals, wherein each of the fifth and sixth drop generators is fluidically coupled to the third fluid feed source (column 2, lines 32-41).

Claim 18: first address lines adapted to conduct the first address signals and second address lines adapted to conduct the second address signals (figure 4, element 110 and 118), wherein the first, third and fifth drop generators and the first address lines are disposed on a first half portion and the second, fourth and sixth drop generators and the second address lines are disposed on a second half portion (figure 4) Cleland also teaches this in figure 11A).

Claim 19: data lines adapted to conduct data signals representing an image, wherein the first drop generators are configured to respond to the first energy signal to eject fluid based on the data signals and the second drop generators are configured to respond to the second energy signal to eject fluid based on the data signals (figure 4, column 2, lines 32-41).

Claim 20: the first drop generators are divided into data line groups of drop generators, wherein the first drop generators in each of the data line groups of drop generators are configured to respond to the first energy signal based on the data signals received on one of the data lines (figure 4, data_bus).

Schloeman et al. do not disclose the following claim limitations:

Claim 10: a fluid feed source having a length, wherein each of the first drop generators is fluidically coupled to the fluid feed source.

Claim 11: a fluid feed source, wherein each of the first drop generators and each of the second drop generators is fluidically coupled to the fluid feed source.

Claim 12: a fluid feed source, wherein the first drop generators are disposed on opposing sides of the fluid feed source and each of the first drop generators is fluidically coupled to the fluid feed source, and the second drop generators are disposed on opposing sides of the fluid feed source and each of the second drop generators is fluidically coupled to the fluid feed source.

Claim 13: a first fluid feed source and a second fluid feed source, wherein each of the first drop generators is fluidically coupled to the first fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source.

Claim 14: a first fluid feed source and a second fluid feed source, wherein the first drop generators are disposed on opposing sides of the first fluid feed source and each of the first drop generators is fluidically coupled to the first fluid feed source and

the second drop generators are disposed on opposing sides of the second fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source.

Claim 15: a first fluid feed source and a second fluid feed source.

Claim 44: providing first energy pulses on a first line that is coupled to the first group of resistors and providing second energy pulses on a second line coupled to the second group of resistors.

Cleland et al. disclose the following claim limitations:

Claim 10: a fluid feed source having a length, wherein each of the first drop generators is fluidically coupled to the fluid feed source (figure 11A, element 1101).

Claim 11: a fluid feed source, wherein each of the first drop generators and each of the second drop generators is fluidically coupled to the fluid feed source (figure 11A, element 1101).

Claim 12: a fluid feed source, wherein the first drop generators are disposed on opposing sides of the fluid feed source and each of the first drop generators is fluidically coupled to the fluid feed source, and the second drop generators are disposed on opposing sides of the fluid feed source and each of the second drop generators is fluidically coupled to the fluid feed source (figure 11A, elements 1101, 1 and 2).

Claim 13: a first fluid feed source and a second fluid feed source, wherein each of the first drop generators is fluidically coupled to the first fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source (figure 11A, elements 1 and 2).

Claim 14: a first fluid feed source and a second fluid feed source, wherein the first drop generators are disposed on opposing sides of the first fluid feed source and each of the first drop generators is fluidically coupled to the first fluid feed source and the second drop generators are disposed on opposing sides of the second fluid feed source and each of the second drop generators is fluidically coupled to the second fluid feed source (figure 11A, elements 1 and 2).

Claim 15: a first fluid feed source and a second fluid feed source (figure 13A, elements YELLOW and MAGENTA).

Claim 44: providing first energy pulses on a first line that is coupled to the first group of resistors and providing second energy pulses on a second line coupled to the second group of resistors (figure 11A).

Claim 45: Schloeman as modified discloses the claimed invention except for distributing the first energy signal to the drop generators with an energy variation of less than 20% between any two of the first drop generators. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the energy of the drop generators, since it has been held that where the general conditions of a

claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, USPQ 233.

Claim 46: Schloeman as modified discloses the claimed invention except for distributing the first energy signal to the drop generators with an energy variation of up to 10% to 15% between any two of the first drop generators. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the energy of the drop generators, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, USPQ 233.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the fluid ejection devices and methods taught by Schloeman et al. with the disclosure of Cleland et al. in order to provide a higher quality printer that prints at a fast rate.

Response to Arguments

Applicant's arguments with respect to claims 1-36 and 38-47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin

1/18/08

MANISH S. SHAH
PRIMARY EXAMINER